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09/856,531	07/03/2001	Satoshi Matsumoto	2001-0600A	9158

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EXAMINER

LEO, LEONARD R

ART UNIT	PAPER NUMBER
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3743

DATE MAILED: 05/07/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/856,531

Applicant(s)

MATSUMOTO ET AL. *fu*

Examiner

Leonard R. Leo

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2002 and 11 February 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 21-38 is/are pending in the application.
- 4a) Of the above claim(s) 33-38 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-32 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1) ☐ Certified copies of the priority documents have been received.  
2) ☒ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 10. 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

Applicant's election without traverse of the species of Figure 4 in Paper No. 14 is acknowledged.

Claims 33-38 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim.

### *Drawings*

Although Figure 5 is drawn to the nonelected species, the drawings are objected to because Figure 5 shows an inconsistency between the Fluid A outlet and Fluid B inlet path arrows. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 21 is rejected under 35 U.S.C. 102(b) as being clearly anticipated by Damsohn et al.

Claims 21 and 23 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Matsunaga et al (Figures 1-5).

Art Unit: 3743

Claims 30 and 32 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Furukawa et al (Figures 6-7 and 10).

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Damsohn et al or Matsunaga et al.

Damsohn et al or Matsunaga et al discloses all the claimed limitations except the partition member located in only the first passageways.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to eliminate the partition member in the second passageways, since it has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184. In this instance, the second working fluid in the second passageway may be more viscous compared to the first working fluid and would require a larger passageway to reduce pressure drop.

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Damsohn et al in view of Matsunaga et al.

Damsohn et al discloses all the claimed limitations except thicker partition plates.

Art Unit: 3743

Matsunaga et al (Figures 1-5) discloses a plate heat exchanger comprising a plurality of stacked first 2 and second 4 passageway plates and thicker partition plates 3 (Figure 5) for the purpose of withstanding higher operating pressures without deformation.

Since Damsohn et al and Matsunaga et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Matsunaga et al would have been recognized in the pertinent art of Damsohn et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Damsohn et al thicker partition plates for the purpose of withstanding higher operating pressures without deformation as recognized by Matsunaga et al.

Claims 24-26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsunaga et al in view of Furukawa et al.

Matsunaga et al discloses all the claimed limitations except U-shaped turning portions.

Furukawa et al discloses a plate heat exchanger comprising a plurality of stacked passageway plates 32 and partition plates 33 (Figure 10), each passageway plate having through-holes and a first or second passageway having U-shaped turning portions (Figure 7) for the purpose of increasing the residence time and heat exchange.

Since Matsunaga et al and Furukawa et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Furukawa et al would have been recognized in the pertinent art of Matsunaga et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Matsunaga et al passageways having U-shaped turning

Art Unit: 3743

portions for the purpose of increasing the residence time and heat exchange as recognized by Furukawa et al.

Regarding claim 31, it would have been obvious to employ in Furukawa et al thicker partition plates for the purpose of withstanding higher operating pressures without deformation as recognized by Matsunaga et al (Figure 5).

Claims 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Damsohn et al in view of Furukawa et al.

The device of Damsohn et al discloses all the claimed limitations except U-shaped turning portions.

Furukawa et al discloses a plate heat exchanger comprising a plurality of stacked passageway plates 32 and partition plates 33 (Figure 10), each passageway plate having through-holes and a first or second passageway having U-shaped turning portions (Figure 7) for the purpose of increasing the residence time and heat exchange.

Since Damsohn et al and Furukawa et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Furukawa et al would have been recognized in the pertinent art of Damsohn et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Damsohn et al passageways having U-shaped turning portions for the purpose of increasing the residence time and heat exchange as recognized by Furukawa et al.

Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai et al.

Kawai et al discloses all the claimed limitations except coating with solder paste.

Art Unit: 3743

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By definition, brazing is joining by hard solder. Further, the specific application of the bonding material is considered to be an obvious design choice producing no new and/or unexpected results and solving no stated problem. Bonding material is known in the art to have many forms: sheets, liquid, paste, wires, etc.

Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawai et al in view of Katagiri et al.

The device of Kawai et al lacks the plates being coated via a mask.

Katagiri et al discloses a plate heat exchanger comprising a plurality of plates 12, 13, having passageways 3, 8, wherein an adhesive material (i.e. broadly read as solder, braze or epoxy) is applied to the plates via a silk screen or print mask for the purpose of precisely coating the plate with minimal waste for the purpose of ease of manufacture and assembly.

Since Kawai et al and Katagiri et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Katagiri et al would have been recognized in the pertinent art of Kawai et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Kawai et al an adhesive material (i.e. broadly read as solder, braze or epoxy) applied to the plates via a silk screen or print mask for the purpose of precisely coating the plate with minimal waste for the purpose of ease of manufacture and assembly as recognized by Katagiri et al.

*Response to Arguments*

The rejections in view of Yuasa and Ito are withdrawn.

Art Unit: 3743

Applicants' remarks with respect to Damsohn et al and Matsunaga et al are mistaken. Damsohn et al discloses a plurality of passageways 71 in plate 70 separated by unlabelled partitions. Similarly, Matsunaga et al discloses a plurality of passageways 11, 16 in plates 2, 4 separated by partitions 12, 17, respectively.

Regarding applicants' newly submitted method claims, Kawai et al discloses "pressing" a heat exchanger plate and forming a braze material on "one side." A plurality of plates are stacked and brazed. In the previous Office action, the Examiner stated for the record that brazing is soldering and that the "solder" material has many forms such as sheets, liquid, paste, wires, etc. Applicants did not seasonably challenge this fact. Lastly, Katagiri et al teaches one of ordinary skill in the art to apply an adhesive material (i.e. broadly read as solder, braze or epoxy) via a silkscreen or print mask for the purpose of precisely coating the plate with minimal waste.

No further comments are deemed necessary at this time.

### *Conclusion*

Applicant is reminded of his duty to disclose under 37 CFR § 1.56, which states in part:

Duty to disclose information material to patentability.

(a) A patent by its very nature is affected with a public interest. The public interest is best served, and the most effective patent examination occurs when, at the time an application is being examined, the Office is aware of and evaluates the teachings of all information material to patentability. Each individual associated with the filing and prosecution of a patent application has a duty of candor and good faith in dealing with the Office, which includes a duty to disclose to the Office all information known to that individual to be material to patentability as defined in this section. The duty to disclose information exists with respect to each pending claim until the claim is cancelled or withdrawn from consideration, or the application becomes abandoned.

It is noted Matsunaga et al, Kawai et al and Katagiri et al are commonly assigned to Matsushita, where the representation in Matsunaga et al is the same as applicants.



Art Unit: 3743

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry of a general nature, relating to the status of this application or clerical nature (i.e. missing or incomplete references, missing or incomplete Office actions or forms) should be directed to the Technology Center 3700 Customer Service whose telephone number is (703) 306-5648.

Any inquiry concerning this Office action should be directed to Leonard R. Leo whose telephone number is (703) 308-2611.



LEONARD R. LEO  
PRIMARY EXAMINER  
ART UNIT 3743

May 5, 2003